

- 30 -

WHAT IS CLAIMED IS:

1. A capacitor cell comprising:
a sealable cell enclosure;
one or more metalized separators disposed within said enclosure, said separators including a separator base partially or wholly coated with one or more spaced-apart anode or cathode films; and
an electrolyte also disposed within the enclosure that activates the anode film, cathode film or both films.
2. The capacitor cell of claim 1, wherein the separator base includes one or more separator materials selected from the group consisting of nonwoven polymers, microporous polymers, track etched materials and papers.
3. The capacitor cell of claim 2, wherein the separator base includes one or more separator materials selected from the group consisting of polyesters, polyethylene, polypropylene, polycarbonate, polytetrafluoroethylene, Kraft paper and Manila paper.
4. The capacitor cell of claim 2, wherein the separator base includes one or more track etched materials selected from the group consisting of NUCLEPORE®, CYCLOPORE™, ISOPORE™, PORETICS® and MEMTREX™, and SPI-Pore™.

- 31 -

5. The capacitor cell of claim 1, wherein the separator base has a thickness of approximately 5-250 microns.
6. The capacitor cell of claim 5, wherein the separator base has a thickness of approximately 10-50 microns.
7. The capacitor cell of claim 1, wherein the cathode film includes one or more cathode materials selected from the group: ruthenium, vanadium, copper, silver, chromium, bismuth, lead, tantalum, titanium, zinc, iron, niobium, zirconium, carbon, manganese and alloys and oxides thereof.
8. The capacitor cell of claim 1, wherein the cathode film has a thickness of approximately 5-150 microns.
9. The capacitor cell of claim 8, wherein the cathode film has a thickness of approximately 25-40 microns.
10. The capacitor cell of claim 7, and further wherein the anode film comprises a pressed, sintered and formed, powdered metal anode member disposed on a side of said separator that does not include the cathode film and wherein said anode member comprises a one of the group: lithium, aluminum, sodium, potassium, calcium, magnesium, vanadium, tantalum, niobium, and alloys and oxides thereof.

- 32 -

11. The capacitor cell of claim 1, wherein the anode film has a thickness of approximately 50-250 microns.

12. The capacitor cell of claim 11, wherein the anode film has a thickness of approximately 90-125 microns.

13. The capacitor cell of claim 1, wherein the capacitor cell is a cylindrical cell.

14. The capacitor cell of claim 1, wherein the capacitor cell is a flat cell.

15. The capacitor cell of claim 14, wherein the metalized separator is folded in a z-fold configuration.

16. The capacitor cell of claim 1, wherein the metalized separator further includes one or more cathode sectors, one or more anode sectors and one or more separator sectors and wherein each of said sectors is spaced-apart from each other.

17. The capacitor cell of claim 16, wherein the cathode sectors include the one or more cathode films, materials for said cathode films selected from the group consisting of ruthenium, vanadium, copper, silver, chromium, bismuth,

- 33 -

lead, tantalum, titanium, zinc, iron, niobium, zirconium, carbon, manganese and combinations thereof and the anode sectors include the one or more anode films, materials for said anode films selected from the group consisting of lithium, aluminum, sodium, potassium, calcium, magnesium, vanadium, tantalum, niobium, and alloys and oxides thereof .

18. The capacitor cell of claim 15 wherein each separator sheet has the one or more cathode materials adjoined to one side of the sheet and the one or more anode materials adjoined to the other side of the sheet.

19. The capacitor cell of claim 1, wherein the metalized separators are separator segments.

20. The capacitor cell of claim 1, wherein the separator segments include an apron that is substantially free of metal material.

21. A method of producing a capacitor cell including a metalized separator material comprising:

a) applying a film of cathode material or anode material to a first surface of one or more separator bases to form one or more metalized separators;

b) forming a layer system of alternating cathodes and anodes wherein the alternating cathodes and anodes are separated by the one or more

- 34 -

separator bases;

c) inserting the layer system into a cell enclosure;

d) administering an electrolyte into the cell enclosure to activate the cathode and anode; and

e) sealing the enclosure to retain and maintain the layer system and electrolyte within the enclosure.

22. The method of producing a capacitor cell of claim 21, further comprising applying a film of cathode material or anode material to a second surface of the separator base or plurality of separator bases so that the metalized separator has an alternating cathode and anode configuration.

23. The method of producing a capacitor cell of claim 21, wherein the cathode film or anode film is applied by magnetron sputtering, plasma spraying, brush coating, spray administration (spray painting), pyrolytic deposition, chemical vapor deposition or physical vapor deposition.

24. The method of producing a capacitor cell of claim 21, wherein the cathode film or anode film is applied by coating a liquid polymer or semi-polymerized polymer with metal particles and allowing the polymer to completely polymerize.

25. The method of producing a capacitor cell of claim 21, further

- 35 -

comprising forming cathode and anode sectors by positioning the cathode film, anode film or both films on the separator base by applying the cathode material or anode material through a shield having one or more apertures.

26. The method of producing a capacitor cell of claim 21, wherein the one or more metalized separators are separator segments.

27. The capacitor cell of claim 26, wherein the separator segments each include an apron that is substantially free of metal material.